Global Precipitation Climatology Project
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NOAA OGP Climate Change Data and Detection (C^2D^2) Applied Research Center (ARC) for Data Set Development

1) Basic Description of Data Set(s):

A- Precipitation (mm/day) - *Note: this is the Global Precipitation Climatology Project (GPCP) and has other components not funded by NOAA. They include the Global Precipitation Climatology Centre (DWD Germany) and the GPCP Merge Development Centre and the Microwave Emission Centre(NASA) and the various geostationary data collections from GMS GOES, METEOSAT. There is also the Satellite Reference Data Centre – which is funded by NOAA but not C^2D^2 and so may not be part of this ARC.*

B- **Observations used in the data set production**
Satellite data: geostationary - infrared; Polar- infrared, TOVS sounder data, microwave emission and scattering
Gauge data – GTS, synop and national collections

C- **Geographic area covered** – global

D- **Temporal and spatial resolution of the data set(s)-**
(1) Monthly mean, 2.5 x 2.5 lat/lon grid
(2) pentad, 2.5 x 2.5 lat/lon grid
(3) daily 1 x1 degree lat/lon

E- **duration of the data set(s)**
(1) 1979- continuing
(2) 1979-continuing
(3) 1997- continuing

F- **standard interval for adding new data:**
Data are collected daily, but products are updated quarterly paced primarily to pacing by gauge data.

G- **accessing the data**
Data products are archived at WDCA at NCDC.

H- **current uses of data set(s) that support operational designation**:
Data supports GEWEX , used in a variety of scientific studies

2) Scientific Stewardship Activities Required for Continued Production of the Climate-Quality Data Set

A- **Quality control procedures, including ongoing improvements**
Careful QC of gauge data, ongoing validation by SRDC, QC of satellite input data including zenith angle adjustments and calibration by components of this ARC; NWS (Janowiak) and NESDIS (Ferraro). Transfer of research algorithms to operations.

B- **Bias identification and processing which should clearly explain methods to be used and why undefined analyses or research to develop new bias detection algorithms should be proposed outside of the ARC**
Bias identification is determined by validation activities both through SRDC and other venues. This includes comparison to other global data sets (accomplished) and study of high latitude precipitation biases (continuing).

Incorporation of new data such as AMSU precipitation estimates which will provide greater temporal resolution should be considered for funding either within or outside the ARC

C- Reprocessing work underway, e.g., refresh rate (version control), production of data set(s) at finer resolution, employment of new processing algorithms, gridding, etc.

No current reprocessing work underway. This is a major undertaking and would have to be considered through guidance from the GEWEX Radiation Panel.

D- basic, "hands-on" utilization activities by involved scientists needed to assess the data set(s) quality and initiate prompt, remedial actions if problems are detected.

QC on input data, time series analysis, diagnostic and climatological studies, model validation. Comparison to other global data sets, evaluation of high latitude precipitation estimates, and comparison of gauge data sets help assess the quality. This year will feature an internationally-based precipitation assessment, guided under the auspices of the GPCP and IPWG, and led by A. Gruber. X. Yin will be responsible for data analyses in support of this assessment.

E- identification of data set "point man" or "champion", i.e., the person whose reputation is most vulnerable with respect to the quality and usefulness of the data set(s)

(Outgoing) leader of GPCP project – Arnold Gruber, who is retiring from federal service at the end of 2004, but will be funded through this project at CICS/University of Maryland.

3) Transition of ARC Project to Operational Center

Outline pathway for eventual transition of your operational process to an established NOAA operational Center using the four steps outlined below.
Steps.

1. Operational processing and data archive at PI's institution only.

The GPCP is unique in the sense that various, independent data sets of precipitation are generated at a PI's facility, and then are delivered to a "merging data center" to produce the final product. Thus, even to accomplish phase 1 is going to require a large effort.

To transition GPCP to the ARC, the routine production of the data sets (monthly, pentad and daily), should be done in one location in an operational setting. Currently the pentad data are produced at CPC/NCEP and the monthly and daily are produced at GSFC/NASA monthly 2.5 x 2.5 and daily 1 x 1 degree. It is our desire to transfer the production activity to NOAA. There are two aspects involved with this transfer: 1) agreement that this is desirable from the GEWEX/GRP and 2) if GEWEX is in agreement it will require funds for a contractor to work with the researchers, primarily NASA, on transitioning the research codes to an operational environment and then maintaining the production. With regard to the first point the transition has been raised by A. Gruber at the GEWEX/GRP in the past and while not rejected it has not moved forward very rapidly. An expression of interest from C^2D^2, especially if funds are available could move that along. With regard to the second point we estimate a 1 person year effort to make this transition happen and then ½ person or less for the routine production including quality control. The estimated cost would be approximately 100 K for the first year for transition from research mode to quasi operational status, and then approximately 50 K for the second and subsequent years for maintenance and QC.

Until there is agreement from GEWEX and resources can be identified for these steps, it is premature to elaborate on steps 2-4 at this time. We will obviously continue to provide scientific stewardship of the GPCP data sets within the current project.

1. data being archived at NOAA Center, but all processing at PI's institution.
2. process being run in parallel at PI's institution and NOAA Center.
3. processing and archive only at NOAA Center, PI performing Scientific Data Stewardship oversight as needed.